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TESTING
CNAS L0446

GRGTEST

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Test Report

Verified code: 886918

Report No.: E20230711057201-5

Customer: Lumi United Technology Co., Ltd

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Camera E1

Sample Model: CH-C01E

Receive Sample Date: Jul.12,2023

Test Date: Jul.14,2023 ~ Jul.31,2023

Reference Document: EN 50665:2017

Test Result: Pass

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GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2023-09-04

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20230711057201-5	Original Issue	2023-08-07

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1. GENERAL DESCRIPTION OF EUT

1.1 APPLICANT INFORMATION

Name: Lumi United Technology Co., Ltd
Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

1.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd
Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

1.3 BASIC DESCRIPTION OF EUT

Product Name: Camera E1
Product Model: CH-C01E
Adding Model: /
Model difference /
description:
Trade Name: Aqara
Power supply: DC 5V,2A
Frequency Band: 2412MHz - 2472MHz for IEEE 802.11b/g/n HT20/ ax HE20
2422MHz - 2462MHz for IEEE 802.11n HT40/ax HE40
2402MHz - 2480MHz for Bluetooth LE with 1M&2M
Antenna Type: IFA antenna
Antenna Gain: -0.07dBi
Hardware Version: YuYun-MAIN-01A-2
Software Version: 4.0.1_0026
Sample submitting way: Provided by customer Sampling
Sample No: E20230711057201-0006
Note: The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

2. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

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3. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

China	CNAS(L0446)
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Copies of granted accreditation certificates are available for downloading from our web site,
<http://www.grgtest.com>

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4. TECHNICAL REQUIREMENTS SPECIFICATION IN

4.1 RF EXPOSURE EVALUATION

This European Standard applies to electronic and electrical equipment for which no dedicated Harmonized product – or product family standard, or standard relating to low power equipment , regarding human exposure not. Annex A lists such harmonized standards available at the time of writing This list may change with time. The current list of standards harmonized under each directive should be consulted at the time of use of this standard.

The measurements and calculations to demonstrate equipment compliance shall be made according to EN 62311:2008, Clause 4 and 5. The general considerations as defined in EN 62311:2008, Clause 4 and 5 shall apply to all equipment.

The product is deemed to fulfil the requirements of this standard if the calculated and/or measured values are less than or equal to the limits.

NOTE In the setting of basic restrictions and the derived reference levels, safety factors have been taken into account. In the specification of the assessment method, uncertainty has been constrained. This is the reason for not requiring that the measured values shall be compared to the limit reduced by the measurement uncertainty.

Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz, unperturbed rms values)				
Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μ T)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4 f^2$	$4 \times 10^4 f^2$	—
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	—
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	—
0,8-3 kHz	$250/f$	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	$0,73/f$	$0,92/f$	—
1-10 MHz	$87 f^{1/2}$	$0,73/f$	$0,92/f$	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Notes

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any $68/f^{1.05}$ -minute period (f in GHz).
4. No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

4.2 EVALUATION RESULTS

Mode	Antenna Gain (dBi)	EIRP Power (dBm)	Frequency Band(MHz)	Power Density (W/m ²)	Limit of Power Density (W/m ²)
IEEE 802.11b	-0.07	15.62	2412-2472	0.07260	10
IEEE 802.11g	-0.07	13.74		0.04709	10
IEEE 802.11n HT20	-0.07	12.70		0.03706	10
IEEE 802.11ax HE20	-0.07	10.78		0.02382	10
IEEE 802.11n HT40	-0.07	12.79	2422-2462	0.03784	10
IEEE 802.11ax HE40	-0.07	10.64		0.02306	10
BLE-1M	-0.07	8.74	2402-2480	0.01489	10
BLE-2M	-0.07	8.70		0.01476	10

Note:

- 1.The maximum output Power were refer to the RF report.
- 2.The field calculation does not take into account the antenna size, which is assumed to be a point source. An ideal isotropic antenna is used as a reference to compare the performance of practical antennas: P watts is radiated, from a point, uniformly over the surface of sphere of radius R . Assumed use distance from EUT to Human, **20 cm** separation distance warning is required.
- 3.BLE and wifi cannot transmitting simultaneously.

The Formula

$$S = \frac{P}{4\pi R^2}$$

Whereas,

S = power density

R=distance from observation point to the antenna (m)

P= The maximum e.i.r.p of the transmitter (W) .

In this section, the power density at 20 cm location is calculated to examine if it is lower than the limit.

The test result is less than 10, the test result is passed.

----- End of Report -----